

ness: but in all these circumstances the affinity of the Scelidotherium with the Megatherium is prominently brought into view. There is no other known quadruped with which the Scelidotherium so closely corresponds in this respect. In proceeding, however, to compare together the thigh-bones of these two extinct quadrupeds, several differences present themselves, which are worthy of notice: of these the first is the presence in the Scelidotherium of a depression for a 'ligamentum teres' on the back part of the head of the femur, near its junction with the neck of the bone: this is shewn in the posterior view of the femur given in Pl. XX. The head itself forms a pretty regular hemisphere: the great trochanter does not rise so high as in the Megatherium, but, relatively, it emulates it in breadth: the small trochanter is proportionally more developed: the external contour of the shaft of the femur is straighter in the Scelidotherium than in the Megatherium, and the shaft itself is less bowed forwards at that part. The articular condyles occupy a relatively smaller space upon the distal extremity of the femur in the Scelidotherium, and they differ more strikingly from those of the Megatherium, in being continued one into the other: the rotular surface, for example, which is shewn in fig. 5. Pl. XXV. is formed by both condyles, while in the Megatherium it is a continuation exclusively of the external articular surface.

The patella, which works upon the above-mentioned surface, is a thick strong ovate bone, with the smaller end downwards: rough and convex externally, smooth on the internal surface, which is concave in the vertical and convex in the transverse directions.

Of the bones of the leg only the proximal end of the tibia is preserved; but this is valuable, as shewing another well-marked difference between the Scelidotherium and Megatherium; for whereas in the latter the fibula is ankylosed with the tibia, this bone, in the Scelidotherium, presents a smooth flat oval articular surface, which is shewn in fig. 2. Pl. XXVII. below the outer part of the head of the bone; from the size and appearance of which, I infer, that the fibula would not have become confluent with the tibia, even in the mature and full-grown animal.

The relative length of the fore and hind extremities cannot be precisely determined from the present imperfect skeleton of the Scelidotherium; but there is good evidence for believing, that the fore extremity was the shortest. The humerus is shorter than the femur by one-ninth part of the latter bone; and the radius, which wants only the distal epiphysis, must have been shorter than the humerus. Now the relative development of the fore and hind legs is one of the points to be taken into consideration in an attempt to determine the habits and nature of an extinct mammal.

In climbing animals the prehensile power is more essential to the hinder than to the fore parts or extremities. In the leech the principal sucker is in the tail;

and higher organized climbers, in like manner, depend mainly on their posterior claspers in descending trees, and hold on by means of them whilst selecting the place for the next application of those at the fore part of the body, whether their place be supplied by the beak, as in the Maccaws, or the fore-feet or hands in the Mammalia.

But, although we perceive the hinder limbs to be the last to lose the advantageous structure of the hand in the Quadrumanous species, and notwithstanding that the tail is for this purpose sometimes specially organized to serve as a prehensile instrument, yet we find that the power of grasping the branches of trees by either legs or tail is never maintained at the expense of undue bulk and weight of those organs. On the contrary, as the fore-limbs are the main instruments in the active exertions of climbing, so they are the strongest as well as the longest in all the best climbers, and the weight of the body which they have to drag along is diminished by dwarfish proportions of the hinder limbs, as in the Orangs and the Sloths.

Can those huge quadrupeds have been destined to climb that had the pelvis and hinder extremities more ponderous and bulky in proportion to the fore-parts of the body than in any other known existing or extinct vertebrate animals?

M. Lund argues for the scansorial character of the Megalonyx, because its anterior extremities are longer than the posterior ones; but if they somewhat exceed the hind-legs in length, how vastly inferior are they in respect of their breadth and thickness. The prehensile faculty of the hinder limbs of the best climbers, as the Sloths, Orangs, and Chameleons is by no means dependent on the superior mass of muscle and bone which enters into their conformation, but is associated with the very reverse conditions.

It is impossible to survey the discrepancy of size between the femur and the humerus of the Scelidotherium, as exhibited in Pl. XX., without a conviction that it relates to other habits than those of climbing trees. The expanse of the sacrum, the evidence of the muscular masses employed in working the hind legs and tail, which is afforded by the capacity of the cavity lodging the part of the spinal marrow from which the nerves of those muscles were derived, both indicate the actions of the hind-legs and tail to have been more powerful and energetic than would be required for mere prehension: and the association of hinder extremities so remarkable for their bulk, with a long and powerful tail, forbids my yielding assent to the speculation set forth by M. Lund, as to the prehensile character of the tail of the Megalonyx.

*Astragalus*.—In the examination of this characteristic bone I have kept in view the question of the habits of the Megatherioid quadrupeds in general, and the especial affinities of the Scelidotherium, in illustration of which I shall notice at